

### Amendments to the Claims

Please amend Claims 1-21 to read as follows.

1. (Currently amended) An ink-jet printing apparatus, comprising:  
~~having~~ a main tank storing ~~ink~~, ink;  
a sub-tank ~~releasably~~ separable and connectable with said main tank through  
an ink supply passage; ~~and~~  
a printing head for ejecting ink supplied from said ~~sub-tank~~, sub-tank;  
printing means for performing printing by ejecting ink from said printing  
head to a printing ~~medium~~, comprising: medium, while said sub-tank and said printing  
head are scanning across the printing medium, said sub-tank being separated from said  
main tank during the scanning;  
  
~~ink supply means for supplying ink from said main tank to said sub-tank~~  
~~through said ink supply passage within a period after completion of printing at preceding~~  
~~time and before starting printing at next time; and~~  
  
ink draining means for performing an ink draining process for draining at  
least a part of ink remaining in said sub-tank within ~~said~~ a period after completion of  
printing at a preceding time and before starting printing at a next time; ~~and in advance of~~  
~~ink supply by said ink supply means~~  
  
ink supply means for supplying ink from said main tank to said sub-tank  
through the ink supply passage within the period and after completion of the ink draining  
process.

wherein said ink supply means supplies to said sub-tank the same type of ink as the ink drained by said ink draining means.

2. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, ~~which~~ further ~~comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at the preceding time and before starting printing at the next time and while a power source ~~being held~~ is turned OFF, (B) a period from turning OFF of the power source at the preceding time to reception of a print start signal for starting printing at the next time, (C) a period from completion of printing at the preceding time to reception of a print start signal for starting printing at the next time, and (D) a period after completion of a recovery process at the preceding time to reception of a the print start signal for starting printing at the next time; and

control means for controlling whether the ink draining process by said ink draining means is to be performed or not on the basis of a period measured by said measuring means.

3. (Currently amended) The ink-jet printing apparatus as claimed in claim 2, wherein said control means controls said ink draining means to perform the ink draining process ~~by said ink draining means~~ when a the measured period is longer than or equal to a predetermined period and controls said ink draining means to not ~~to~~ perform the

ink draining process ~~by said ink draining means~~ when the measured period is shorter than ~~said~~ the predetermined period.

4. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, ~~which~~ further ~~comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at the preceding time and before starting printing at the next time and while a power source ~~being held~~ is turned OFF, (B) a period from turning OFF of the power source at the preceding time to reception of a print start signal for starting printing at the next time, (C) a period from completion of printing at the preceding time to reception of a the print start signal for starting printing at the next time, and (D) a period after completion of a recovery process at the preceding time to reception of a the print start signal for starting printing at the next time;

calculating means for calculating a value corresponding to an amount of remaining ink in said sub-tank at completion of printing at the preceding time; and

control means for controlling whether the ink draining process by said ink draining means is to be performed or not on the basis of a period measured by said measuring means and the value corresponding to the remaining ink amount calculated by said calculating means.

5. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, ~~which~~ further ~~comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at the preceding time and before starting printing at the next time and while a power source ~~being held~~ is turned OFF, (B) a period from turning OFF of the power source at the preceding time to reception of a print start signal for starting printing at the next time, (C) a period from completion of printing at the preceding time to reception of a the print start signal for starting printing at the next time, and (D) a period after completion of a recovery process at the preceding time to reception of a the print start signal for starting printing at the next time;

first calculating means for calculating a first value corresponding to an amount of remaining ink in said sub-tank at completion of printing at the preceding time;  
and

second calculating means for calculating a second value corresponding to a viscosity of the remaining ink in said sub-tank at completion of printing at the preceding time;

third calculating means for calculating a third value corresponding a viscosity of current ink on the basis of the measured period, the calculated first value corresponding to the remaining ink amount and the calculated second value corresponding to ink viscosity; and

control means for controlling whether the ink draining process by said ink draining means is to be performed or not on the basis of the third value corresponding to the viscosity of the current ink.

6. (Currently amended) The ink-jet printing apparatus as claimed in claim 5, ~~which comprises~~ further comprising:

detecting means for detecting temperature and humidity;

storage means for storing a history of temperature and humidity during ~~said~~ the period; and

correcting means for correcting ~~a~~ the third value corresponding to the viscosity of ~~said~~ the current ink on the basis of ~~said~~ the history.

7. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, wherein ink supply is performed by said ink supply means to said sub-tank containing ~~said~~ the remaining ink before the ink draining process by said ink draining means during a the period after completion of printing at the preceding time and before starting printing at the next time.

8. (Currently amended) The ink-jet printing apparatus as claimed in claim 7, ~~which further comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at the preceding time and before starting printing at the next time and while a power source ~~being held~~ is turned OFF, (B) a period from turning OFF of the power source at the preceding time to reception of a print start signal for starting printing at the next time, (C) a period from completion of printing at the preceding time to reception of a the print start signal for starting printing at the next time, and (D) a period after completion of

a recovery process at the preceding time to reception of a the print start signal for starting printing at the next time; and

control means for controlling said ink draining means to perform the ink draining process after performing of ink supply when a measured period is longer than or equal to a predetermined period and controlling not to perform the ink supply and the ink draining process ~~by said ink draining means~~ when ~~said~~ the measured period is shorter than the predetermined period.

9. (Currently amended) The ink-jet printing apparatus as claimed in claim 7, ~~which~~ further ~~comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at the preceding time and before starting printing at the next time and while a power source ~~being held~~ is turned OFF, (B) a period from turning OFF of the power source at the preceding time to reception of a print start signal for starting printing at the next time, (C) a period from completion of printing at the preceding time to reception of a the print start signal for starting printing at the next time, and (D) a period after completion of a recovery process at a preceding time to reception of a the print start signal for starting printing at the next time;

calculating means for calculating a value corresponding to an amount of remaining ink in said sub-tank at completion of printing at the preceding time; and

control means for controlling whether said ink draining ~~process~~ means is to ~~be performed~~ perform the ink draining process after performing ~~said~~ of the ink supply or

~~not to perform whether~~ both of ~~said the~~ ink supply before ~~the~~ ink draining process and ~~said the ink draining process are not to be performed~~ on the basis of a period measured by said measuring means and ~~the~~ value corresponding to ~~the~~ remaining ink amount calculated by said calculating means.

10. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, ~~which~~ further ~~comprises~~ comprising:

measuring means for measuring any one of (A) a period after completion of printing at ~~the~~ preceding time and before starting printing at ~~the~~ next time and ~~while~~ a power source ~~being held is turned~~ OFF, (B) a period from turning OFF of the power source at ~~the~~ preceding time to reception of a print start signal for starting printing at ~~the~~ next time, (C) a period from completion of printing at ~~the~~ preceding time to reception of a ~~the~~ print start signal for starting printing at ~~the~~ next time, and (D) a period after completion of ~~a~~ recovery process at ~~the~~ preceding time to reception of a ~~the~~ print start signal for starting printing at ~~the~~ next time;

first calculating means for calculating a first value corresponding to an amount of remaining ink in said sub-tank at completion of printing at ~~the~~ preceding time;  
and

second calculating means for calculating a second value corresponding to a viscosity of ~~the~~ remaining ink in said sub-tank after completion of printing at ~~the~~ preceding time;

third calculating means for calculating a third value corresponding to a viscosity of current ink on the basis of the measured period, the calculated first value corresponding to the remaining ink amount and the calculated second value corresponding to the ink viscosity; and

control means for controlling whether said ink draining ~~process~~ means is to ~~be performed~~ perform the ink draining process after performing ~~said~~ of the ink supply or ~~not to perform~~ whether both of ~~said~~ the ink supply before the ink draining process and ~~said~~ the ink draining process are to be performed on the basis of the third value corresponding to the viscosity of the current ink.

11. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, wherein said ink draining means drains substantially all ~~amount~~ of flowable ink in said sub-tank.

12. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, ~~which performs~~ further comprising means for performing a warming process for elevating a temperature of the ink in said printing head and the ink in said sub-tank before ~~performing~~ the ink draining process is performed by said ink draining means.

13. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, wherein the ink draining process is performed by said ink draining means ~~is performed~~ at one of a point of time taking turning OFF of a power source as a trigger, a



point of time taking reception of a print start signal for starting a next print printing as a trigger, and a point of time of reception of the print start signal for starting a first print after turning ON of the power source as a trigger.

14. (Currently amended) The ink-jet printing apparatus as claimed in claim 1, wherein the ink draining process is performed by said ink draining means is performed at one of a point of time taking turning OFF of a power source as a trigger and a point of time taking reception of a print end signal indicating an end of printing as a trigger.

15. (Withdrawn) An ink-jet printing apparatus ~~having a plurality of main tanks storing inks, and a plurality of sub-tanks connected to a printing head and releasably connectable with said plurality of main tanks through respective ink supply passages~~ as claimed in claim 1, further comprising:

a plurality of sub-tanks;

calculating means for calculating a remaining ink amount in each sub-tank at upon completion of a printing operation; and

first draining control means for controlling draining of ink from each sub-tank by the ink draining process on the basis of results of calculation by said calculating means so that remaining ink amounts in said plurality of sub-tanks are substantially equal with each other.

16. (Withdrawn) The ink-jet printing apparatus as claimed in claim 15, wherein said ~~first~~ draining control means controls draining of ink from each sub-tank so that remaining ink amounts in respective ~~of said~~ sub-tanks become substantially equal ~~amount at the~~ to a minimum amount among remaining ink amounts calculated by said calculating means.

17. (Withdrawn) The ink-jet printing apparatus as claimed in claim 15, which further ~~comprises~~ comprising:

comparing means for comparing mutual ~~difference~~ differences of remaining ink amounts in respective ~~of said~~ sub-tanks calculated by said calculating means with a predetermined value, ~~and~~ wherein

said ~~first~~ draining control means controls draining depending upon a result of comparison by said comparing means.

18. (Withdrawn) The ink-jet printing apparatus as claimed in claim 17, wherein said ~~first~~ draining control means controls draining of inks from respective sub-tanks so that remaining ink amounts in said plurality of sub-tanks become substantially equal ~~value~~ with each other when said the difference is greater than said the predetermined value.

19. (Withdrawn) The ink-jet printing apparatus as claimed in claim 15, which further ~~comprises~~ comprising second draining control means for draining remaining

inks in said plurality of sub-tanks to an amount equal to each other after draining by said first draining control means and before starting of a next printing operation.

20. (Withdrawn) The ink-jet printing apparatus as claimed in claim 15, ~~which further comprises~~ comprising negative pressure generating means for holding ink in ~~said~~ each sub-tank, said negative pressure generating means ~~is~~ comprising a porous body including a foamed body or a fibrous body.

21. (Withdrawn) The ink-jet printing apparatus as claimed in claim 16, ~~wherein~~ further comprising a plurality of main tanks ~~store~~ for storing inks colors ~~of~~ which are different from each other.